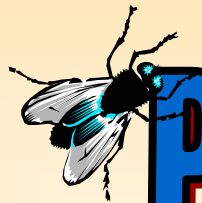




Integrated



Pest

Management



CPT Caroline Kalinowski
Environmental Science Officer
(804) 734-4287



What is IPM?

- ◆ Planned program to prevent pests & disease vectors from causing unacceptable damage or injury to operations, people, property, or environment.
- ◆ "Use of all appropriate technology & management practices to bring about pest prevention and suppression in a cost-effective, environmentally sound manner" (*AFPMB TG 29*).

**Pesticide use is NOT an option
when non-chemical control
methods are available.**



IPM Program Objectives

AR 40-5, Chapter 10

- ◆ Provides prevention & control of pests that could cause major medical or economic harm.
- ◆ Protects personnel & the environment from the toxic effects of pesticides.
- ◆ Assures the preparedness of field units to prevent & control vector-borne disease.



Management v. Control

Management: The reduction of pest populations to tolerable numbers.

- changing practices
- making habitat or structural alterations
- carefully using pesticides to kill pests only when indicated

Control: A single principal measure taken to kill pests - *usually the application of pesticides.*

Wood, G. (1992). *Urban Integrated Pest Management, A Guide for Commercial Applicators.* University of Maryland.



Pest Control Practices

Element	Old-Fashioned Control	IPM
Program Strategy	Reactive	Preventive
Customer Education	Minimal	Extensive
Potential Liability	High	Low
Emphasis	Routine pesticide application	Pesticide use when exclusion, sanitation, etc are inadequate
Inspection & Monitoring	Minimal	Extensive
Pesticide Application	By Schedule	By Need
Insecticides (indoors)	Sprays & Aerosols	Baits
Spray Insecticide Application	Surface treatment	Cracks & Crevices
Spraying & Fogging	Extensive	Minimal
Rodent Control	Emphasis = Rodenticide	Emphasis = trapping, sanitation, & exclusion
Bird Control	Emphasis = Avicide	Emphasis = exclusion



Components of IPM

Communication & Cooperation among subsistence, medical, veterinary, & pest management consultant.

- ◆ Sanitation Emphasis
- ◆ Prevent Entry
- ◆ Harborage Reduction
- ◆ Early Detection
- ◆ Non-Chemical Controls

Methodology

ID infestations

Control with short-term solutions.

Reduce/Eliminate causes with long-term solutions.



The IPM Process

- ◆ Understand & Educate the Customer
(facility occupants)
- ◆ Analyze the Pest Problem
- ◆ Take Short-Term, Corrective Action
- ◆ Implement Long-Term, Preventive Action
- ◆ Monitor, Document,
& Evaluate Results
- ◆ Customer Feedback

**Pest problems are not all
alike.**

◆ ***Situational pest
management requires
understanding specific pest
habits & preferences.***



IPM Tools for Pest Control

- 91% Baits
- 91% Glueboards & monitoring traps
- 79% Insect growth regulators
- 62% Caulking
- 50% Screening or "stuffing"
- 38% Fly control systems
- 30% Bird control devices
- 27% Vacuum cleaners
- 16% Others

Pest Control Magazine, 1995.



IPM Responsibilities

Facility Managers (*The Customer*):

- ✓ Maintain sanitation standards to prevent pest access to & harborage in the facility.
- ✓ Consult with IMA for non-chemical controls.
- ✓ Notify facilities engineers to:
 - ➔ remove dead/trapped insects or rodents from traps
 - ➔ repair structural damage to deny pest entry



Premises Pest Exclusion

-- Applying Pest Management --

- ◆ Eliminate Harborage Conditions:
 - remove cardboard boxes & wooden pallets
- ◆ Eliminate Structural Defects:
 - caulk holes & cracks in walls and around door frames
- ◆ Repair/Replace Torn or Missing Window Screens:
 - screens are > 16-mesh per inch
- ◆ Mechanical Air Curtain at Doors:
 - air blows away from facility
 - doors kept closed when not in use



Stock Handling Practices

-- Applying Pest Management --

Infested Foods & Supplies:

- **Inspect incoming shipments received.**
- **Rotate stock:**
 - ✓ reduces potential of old product infestations
 - ✓ reduces spread of pests from infested products





IPM Responsibilities

Preventive Medicine:

- **Food Service Facilities:** Sanitation inspections (TB MED 530 compliance).
- Guidance for non-chemical pest control.
- Assists with coordination for chemical pest control.

Veterinary Activity:

- Evaluate food infestations.
- Evaluate pest damage or contamination of food packages.
- Determines disposition of affected products.



IPM Responsibilities

Facilities Engineers:

- Assist coordination with certified pest managers for chemical control.
- Support facility work orders for structural defects.



Identifying Pest Problems

Flies

Cockroaches

Moths

Birds

Beetles

Rodents



Cockroaches



◆ Detection:

→ **Will scatter from dark room when lights turned on.**

→ **Oily, musty odor**

→ **Droppings**

- **Prefer dark & damp spaces**
- **Harbor near boxes & pallets**

- Small, dark, spherical (1mm length)
- Found in cracks & crevices near food



Roach Controls

◆ Small Roaches

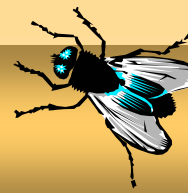
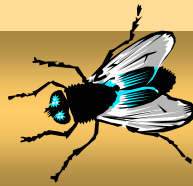
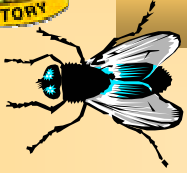
- **Sanitation**
- **Caulking Cracks & Crevices**
- **Baiting (*should be standardized insecticide trmt*)**
- **Spraying: Cracks & Crevices**
- **Sticky Traps**

◆ Large Roaches

- **Drying: Reduce Moisture**
- **Sealing Entry Points**
- **Housekeeping**
- **Baiting**



Flies



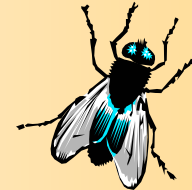
◆ Garbage & Refuse:

- Containers covered when not in use
- Close dumpster doors
- Plastic liners in garbage cans
- Containers frequently cleaned & sanitized
- Trash bags tightly sealed before placement in dumpster
- Police spilled trash or garbage around dumpster ASAP.



◆ Sticky Fly Paper:

- authorized in Non-food areas
- prohibited in food prep, service, & dining areas



◆ Screens & Air Curtains

- 1/16th mesh
- air flow blows towards outside





Rodents

◆ Rats

- Dig burrows around foundation
- Attracted to debris & unsecured food (waste)
- Problems originate outside of building

Rats can squeeze through 1/2-inch gaps; Mice only need 1/4 inch

◆ Mice

- Can enter building from outside; problems originate indoors
- Nest w/in 15 feet of food source
- Spread through a structure along pipes, cables, & ducts
- Raised flooring & Lowered ceilings provide harborage



Signs of Rodent Infestation

- ◆ Droppings: cigar-shaped
 - **fresh = shiny & black**
 - **old = pale brown & brittle**
- ◆ Gnawing Marks: scalloped edges
 - **package corners, electrical wiring, wood**
- ◆ Rub Marks: unobstructed "runways"
 - **grease marks along pipes & walls**
- ◆ Tracks:
 - **easily seen on dusty surfaces**
 - **common near vertical surfaces**





Rodent Controls

◆ Rats

- Secure garbage & trash
- Eliminate debris
- Eliminate building access
- Bait boxes
- Tracking powder
- Trapping

◆ Mice

- Seal entry points
- Cleaning & Housekeeping
- Rodenticides: **NOT RECOMMENDED**
- Trapping

USACHPPM (USAEHA) TG-138, Guide to Commensal Rodent Control
http://chppm-www.apgea.army.mil/armydocs.asp?pub_type=TG



Birds

Pigeons, Starlings, & English Sparrows

- **Roost & nest on/in buildings**
- **Excrement**
- **Structural problems**

Controls

- ◆ Consider effectiveness, minimal damage to structures, & public relations
- ◆ Shooting
- ◆ Toxic baits & perches
- ◆ Porcupine wire
- ◆ Repellent gels
- ◆ Electric wire
- ◆ Scaring devices
- ◆ Screening
- ◆ Tensioned netting
- ◆ Dangling filaments



Moths & Beetles

- ◆ Present as problems in dry-goods
 - **contaminate flour, oatmeal, rice, cereals, & grains**
- ◆ Storage Control
 - **cool, dry: 50% humidity, 50° F**
- ◆ Reporting
 - **contact Veterinary Activity for pest ID**
- ◆ Controls
 - **Stock rotation**
 - **Ventilation**



Pesticide Use Guidance



◆ Minimal Use

- Only when problem exists.
- Repetitive treatment without regard for pest populations is ineffective & environmentally unsound.

◆ Least Toxic Treatment

- Consider Non-chemical alternatives First.
- Baseboard spraying & room fogging not effective for killing roaches.
- Insecticide baits preferable to sprays.
- Limit sprays to cracks & crevices.

**Only Applied by Certified
Applicator**



Bottom Line...

- ◆ Only a well implemented IPM program will control or prevent pest problems in your facility.
- ◆ Successful pest management comes from
 - ◆ **communication**
 - ◆ **cleaning & sanitation**
 - ◆ **building maintenance activities**
 - ◆ **outdoor maintenance activities**
 - ◆ **monitoring**



IPM Program Resources

- ◆ DoD Instruction 4150.7, *DoD Pest Management Program*, April 22, 1996.
 - <http://www.dtic.mil/whs/directives/corres/html/41507.htm>
- ◆ Armed Forces Pest Management Board
 - <http://www.afpmb.org/>
- ◆ AFPMB Technical Guides
 - <http://www.afpmb.org/pubs/tims/tims.htm>
 - <http://www.afpmb.org/pubs/tims/TG18/tg18.htm>
 - <http://www.afpmb.org/pubs/tims/tim29.htm>
 - <http://www.afpmb.org/pubs/tims/tim39.htm>



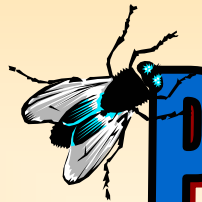
SUMMARY

- ◆ Defined IPM
- ◆ IPM Program Objectives
- ◆ IPM Components & Process
- ◆ Individual IPM Responsibilities
- ◆ Identifying Pest Problems
- ◆ Pest Control Measures
- ◆ Pesticide Use Guidance
- ◆ IPM Program Resources



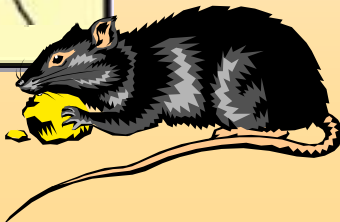


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